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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,027	04/15/2004	Hao Ding	06268D1 USA	7479
23543	7590	10/15/2004	EXAMINER	
AIR PRODUCTS AND CHEMICALS, INC. PATENT DEPARTMENT 7201 HAMILTON BOULEVARD ALLENTOWN, PA 181951501			HAILEY, PATRICIA L	
			ART UNIT	PAPER NUMBER
			1755	

DATE MAILED: 10/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/825,027

Applicant(s)

DING, HAO

Examiner

Patricia L. Hailey

Art Unit

1755

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 04/15/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Frenzel et al. (U. S. Patent No. 6,350,717).**

Frenzel et al. teach a catalyst comprising at least one metal of the 10<sup>th</sup> group of the Periodic Table of Elements (e.g., nickel, palladium) and at least one metal of the 11<sup>th</sup> group of the Periodic Table of Elements (e.g., copper, silver). The amounts of these components are at most 0.5% by weight for the metal of the 10<sup>th</sup> group, and not more than 3.9% by weight for the 11<sup>th</sup> group, said amounts based on the total mass of the catalyst. See col. 5, lines 12-30 and col. 6, lines 3-23 of Frenzel et al.

The catalyst may also contain promoters such as zinc added in amounts ranging from a few ppm by weight to a few thousand ppm by weight. See col. 6, lines 24-37 of Frenzel et al.

The catalyst may also contain a support, which may be aluminum oxide, which, apart from unavoidable impurities, may also contain inorganic oxides such as silicon oxide, titanium dioxide, etc. See col. 4, lines 26-42 of Frenzel et al.

In view of these teachings, Frenzel et al. anticipate claim 1.

**4. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Couves et al. (U. S. Patent No. 5,990,344).**

Couves et al. teach a catalyst for the production of vinyl acetate, said catalyst comprising palladium in concentrations as high as 10%. The support may comprise silica, alumina, titania, or carbon. See col. 2, lines 45-65 of Couves et al.

In addition to palladium, the catalyst may also contain gold, copper, and/or nickel as promoters, in amounts ranging from 0.1 to 10% by weight of each, as well as additional promoters like cadmium, which may be present in amounts ranging from 0.1 to 15%, based on the finished catalyst. See col. 3, lines 37-59 of Couves et al.

The percentage ranges of palladium and the additional promoters are considered to read upon the claimed weight ratios recited in claims 5-7.

Although Applicants' claims recite that the claimed catalyst is "suitable for use in a hydrogenation process", this limitation is considered one of intended use and is not deemed critical to the inventive catalyst.

In view of these teachings, Couves et al. anticipate claims 1-7.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Couves et al. (U. S. Patent No. 5,990,344) in view of Frenzel et al. (U. S. Patent No. 6,350,717).

Couves et al. is relied upon for its teachings in the above 102(b) rejection.

Couves et al. do not teach or suggest the presence of zinc as a promoter, although this reference does teach that the catalyst disclosed therein may also contain additional promoters such as barium, potassium, and sodium, and Group II metals (col. 3, lines 48-52).

Frenzel et al. teach a catalyst comprising at least one metal of the 10<sup>th</sup> group of the Periodic Table of Elements (e.g., nickel, palladium) and at least one metal of the 11<sup>th</sup> group of the Periodic Table of Elements (e.g., copper, silver). The amounts of these components are at most 0.5% by weight for the metal of the 10<sup>th</sup> group, and not more than 3.9% by weight for the 11<sup>th</sup> group, said amounts based on the total mass of the catalyst. See col. 5, lines 12-30 and col. 6, lines 3-23 of Frenzel et al.

The catalyst may also contain promoters such as zinc added in amounts ranging from a few ppm by weight to a few thousand ppm by weight. See col. 6, lines 24-37 of Frenzel et al., which also discloses sodium and potassium as exemplary promoters.

The catalyst may also contain a support, which may be aluminum oxide, which, apart from unavoidable impurities, may also contain inorganic oxides such as silicon oxide, titanium dioxide, etc. See col. 4, lines 26-42 of Frenzel et al. Because these references respectively teach catalysts containing common components such as palladium, nickel, and copper, common supports such as alumina, silica, and titania, and common promoters such as sodium and potassium, it would have been obvious to one skilled in the art at the time the invention was made to modify the catalyst of Couves et al. by incorporating therein zinc, as suggested by Frenzel et al., since it is well known that zinc is a Group II metal. Further, combining two or more materials disclosed by the prior art for the same purpose to form a third material that is to be used for the same purpose (said purpose,

in this case, being catalysts containing palladium, nickel, and promoters comprising zinc, cadmium, copper, and silver) has been held to be a prima facie case of obviousness, see In re Kerkhoven, 205 U.S.P.Q. 1069.

### *Conclusion*

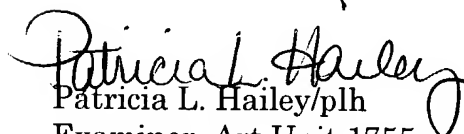
8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

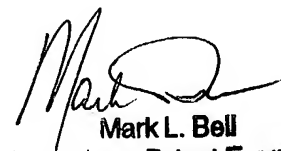
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patricia L. Hailey whose telephone number is (571) 272-1369. The examiner can normally be reached on Mondays-Thursdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark L. Bell can be reached on (571) 272-1362. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group 1700 Receptionist, whose telephone number is (571) 272-1700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Patricia L. Hailey/plh  
Examiner, Art Unit 1755  
October 1, 2004

  
Mark L. Bell  
Advisory Patent Examiner  
Technology Center 1700